平成21年度　第1回プロジェクト研究特別講演会報告

富山大学工学部と学術交流協定を締結しているニュー・サウス・ウェールズ大学のハッチソン博士が、オーストラリアで新たに稼働し始めました中性子線研究機構 OPAL の最新情報と磁性材料研究の成果についてご講演を行った。

日時:　2009年10月16日(金)　13:00～14:30
場所:　工学部　中会議室
講師:　Dr. Wayne D. Hutchison　（ニュー・サウス・ウェールズ大学　講師）
(The University of NSW at the Australian Defence Force Academy, Canberra, Australia)
題目:　The Magnetic Wombat: Powder and Single Crystal Neutron Diffraction Studies of the $RNiAl_4$ System

【講演概要】OPAL, the Open Pool Australian Light water reactor, together with an array of neutron beam instruments, is a facility commissioned relatively recently. These neutron instruments are all named for animals. Among these the high intensity (powder) diffractometer is known as Wombat. With its two dimensional detector and high flux, Wombat is very useful for at looking at magnetic structures, not only in the context of powder diffraction, but also for single crystals. This is particularly useful, for example, in looking at samples in an in situ magnetic field.

Wombat has been used to examine the $RNiAl_4$ system, specifically with R=Tb and R=Er. In the case of R = Er, the magnetisation data showed evidence of a phase transition at ~6K which has been confirmed with the powder neutron data from Wombat as a transition to an incommensurate magnetic structure.

This talk will include an outline of the OPAL facility and discussion of the above experiments and outcomes. Also for those that maybe unfamilar with Australian fauna, the real wombat will be revealed.